

P. L. 93-288 - TEMPORARY HOUSING

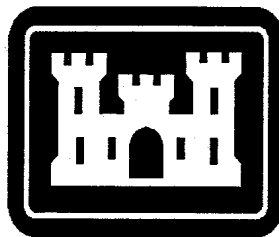
ROSEAU, MN

ROSEAU COUNTY/ROSEAU RIVER

**SPECIFICATIONS
FOR**

**ROSEAU MANUFACTURED HOME
PROCUREMENT AND INSTALLATION**

August 2002



**US Army Corps
of Engineers**
St. Paul District

PART 1 GENERAL

1.1 SCOPE AND OBJECTIVE

These specifications establish the minimum standards for manufactured home construction and outfitting to meet FEMA contract requirements. The standards identify minimum square footage of living space, floor plan configuration, finishes, furnishing and environmental living conditions necessary to provide emergency housing for disaster relief operations. All homes shall be substantially equal in finish and quality; and it is desired that all homes are identical. The minimum standards are intended to encourage competition through the use of manufacturers' standard designs and/or readily available factory or sales outlet stocks. All products, including appliances and furnishings, shall be new. The standards shall not be considered restrictive in that the supplier may provide "equal or better" units considering that the competitive price and delivery requirements can be met.

1.2 DEFINITIONS

"Manufacturer's standard" means the materials and workmanship shall be the same as normally delivered to a retail sales outlet.

"Units" means manufactured homes, complete as specified.

1.3 SCHEDULE AND DELIVERY

- a) The Contractor shall deliver not less than 5 units per day.
- b) The start date for delivery computation shall begin 5 days after issuance of the order, and the minimum time for delivery shall be 10 days after issuance of the order.
- c) Units shall be delivered to the staging area located at the Roseau Fair Grounds. The fair grounds are located at 4th Street NW and 4th Avenue NW, Roseau, Minnesota. The units shall be placed in rows as directed by the Government.

1.4 GOVERNMENT ACCEPTANCE

Units will not be accepted until an authorized Government Representative inspects and signs for the unit. Inspection will include temporary connection of water and electricity by the Government. Copies of all shipping documents shall be provided prior to acceptance. Any manufactured homes that have been damaged during transportation (such as leaking plumbing, or broken fixtures/furnishings), are not road ready and transportable (such as flat tires, damaged axles, etc), or do not meet specifications, will not be accepted until the deficiencies are corrected.

1.5 MANUFACTURER'S REPRESENTATIVE

The manufacturer shall have a representative available on an on-call basis during inspections at the staging area. The manufacturer's representative shall be capable of fixing, repairing, or resolving deficiencies.

1.6 WARRANTY

- a) The Contractor's standard warranty shall be included. The Contractor shall pass through to the Government any warranties provided to it by any subcontractor or supplier under this contract and take such actions as are necessary to make those warranties enforceable by the Government. Copies of any pass through warranties shall be provided to the Government and included in each owner's manual.
- b) The Contractor's standard warranty shall also apply to the external stairs, ramps and enclosures provided under this contract.
- c) Restrictions and limitations on the Contractor's standard warranty:
 - i. No disclaimer or limitation in this warranty eliminates, limits or reduces any of the Government's rights under the other terms and conditions of this contract.
 - ii. If there is any inconsistency between the Contractor's standard warranty and any other term or condition of this contract, the remaining contract terms and conditions shall take precedence over this warranty.
- d) The Government will not complete warranty cards. The Contractor shall identify a Point of Contact for handling warranty items (normal and after duty hours) and shall provide the procedures for reporting warranty items. Warranty work will not be priced or paid separately and all warranty costs shall be included in the contract prices.

1.7 SUBMITTALS

- a) Floor Plan. Submit floor plans for Manufactured Homes and ADA Manufactured Homes in a similar detail level to Figure 3.1. Submit within 24 hours after award, with manufacturer's point of contact (a pre-award submittal is acceptable).
- b) Utility Details. Submit locations of sanitary drain, water inlet, and electrical connection on the floor plan, with relative dimensions between the lines indicated to the nearest inch. Submit within 24 hours after award, with manufacturer's point of contact (a pre-award submittal is acceptable).
- c) Energy Code Requirements. Submit insulation R-values for the ceiling, walls, and floor.
- d) Manufacturer's Installation Manuals. A copy of the manufacturers' installation guideline and technical data for set-up shall be in each unit; and 3 copies shall be forwarded to the Contracting Officer's Representative with delivery of the first unit. Manufacturer's installation manuals shall be provided in a packet stored in a readily locatable area within each unit.
- e) A certificate of origin shall accompany each unit.

1.8 DAPIA CERTIFICATION

If the manufacturing facility is more than 250 miles from the destination, the manufacturer shall include DAPIA (Design Approval Primary Inspection Agency) certification, which attests to the integrity of the structure to travel the distance from the plant to the delivery destination without sustaining transportation induced damage. This certification shall be provided with the shipping documents when the unit is received.

1.9 MINNESOTA LICENSING AND BONDING

Manufactured home manufacturers are required to be licensed and bonded in Minnesota prior to shipping new manufacture homes into Minnesota, as per MN Statute 327B. The MN Building Codes Division licenses manufactures.

- To obtain a license application and bond form contact Cindy Jackson at MN Building Codes Division 651-2964628.
- Questions concerning licensing requirements contact Randy E. Vogt at 651-296-9927, e-mail randy.vogt@state.mn.us

1.10 MEASUREMENT AND PAYMENT

- a) Manufactured Homes. Manufactured homes shall be measured by each unit. Payment will be made for each unit provided in compliance with these specifications and accepted by the Government.
- b) ADA Manufactured Homes. ADA Manufactured Homes shall be measured by each unit. Payment will be made for each unit provided (and accepted) in general compliance with the Americans with Disability Act (ADA), and applicable portions of these specifications.

PART 2 PRODUCTS

2.1 CONSTRUCTION AND SAFETY STANDARDS

- a) The manufactured homes shall meet the design and construction requirements established in the latest version of Manufactured Housing Construction and Safety Standards (MHCSS) issued by the U.S. Department of Housing and Urban Development (HUD) ¹.
- b) Design loads for exterior live loading shall be based on 30 pounds per square foot vertical (snow) loading, 15 pounds per square foot horizontal (wind) loading, and 9 pounds per square foot uplift (wind) loading. These design loads are required by Minnesota Rule 1350.3100, and exceed the minimum MHCSS structural design requirements for Roseau County.
- c) The manufactured homes shall meet the requirements of the Minnesota Energy Code, Chapter 7672.

¹ Published in the Code of Federal Regulations, Title 24, Part 3280, and also as ICC/ANSI 2.0 (1998)

2.2 SIZE AND CONFIGURATION

The nominal dimensions of the manufactured home shall be 14 ft. wide and 60 ft. long, as indicated in Figure 3.1 (in the Attachments). The unit shall be configured with three bedrooms, one bathroom, kitchen, dining area, living room, utility area and ample closets/storage areas. A standard Floor Plan is shown in Figure 3.1. Alternate floor plans shall be submitted for approval. The back-to-back configuration for the kitchen and bathroom is preferred. Configurations with the 2.3 only bathroom located in the master bedroom, or accessible only by proceeding through a bedroom, are unacceptable.

2.3 EXTERIOR, WALL, CEILING, AND FLOOR COVERINGS

- a) Unit siding shall be the manufacturer's standard materials and color (e.g., full vinyl siding or full aluminum siding or a combination of different materials). Roof shall be manufacturer's standard materials and construction.
- b) Wall and Ceiling Coverings shall be the manufacturer's standard materials and colors.
- c) Floor coverings shall be the manufacturer's standard sheet vinyl throughout the unit except for ready manufactured units (constructed prior to contract award) that may contain carpet areas other than the kitchen, bathroom and utility area.

2.4 DOORS AND WINDOWS

- a) Doors and windows shall meet the Minnesota Energy Code.
- b) All operable windows in the unit shall have installed two-fiberglass panel curtains with foam-backed insulation that are color coordinated with the interior décor or approved window blinds.

2.5 HEATING SYSTEM

The unit shall be equipped with an electronic ignition gas furnace operating on liquid petroleum (LP) gas. The furnace shall meet the output and efficiency requirements of the Minnesota Energy Code² (based on ASHRAE Handbook of Fundamentals, or an equivalent method). The furnace shall also be built or equipped for the installation of a split-system air conditioner and also have a 4-wire thermostat connect completely installed.

2.6 ELECTRICAL SYSTEM

- a) The manufactured homes shall meet requirements of the National Electric Code, Article 550 (2002).
- b) The unit electrical service shall consist of a 100 amp, 120/240 volts three-wire panel board, complete with master and branch circuit breakers. The panel board shall be labeled and located in a readily accessible and safe location inside the unit.

² State Rules Chapters 7670 and 7672

- c) Minimum interior lighting requirements shall include a ceiling mounted fixture in each of the following areas: bedrooms, hallway, kitchen, living room, dining area, utility area, and bathroom. Ceiling fixtures shall be wall switch controlled, have dual sockets and 60-watt bulbs, and shall be equipped with break resistant shades and/or globes. Lighting fixtures shall be the manufacturer's standard and appropriately protected during transport.
- d) Provide a duplex receptacle outlet on the underside of the manufactured home for heat tape. The outlet shall be located within 2 feet from the cold water service line. The outlet shall be located at least 3 feet from the outside wall and shall not be connected to a GFI breaker.
- e) Provide outlets for a washer and drier (electric heat) in the utility room.
- f) Provide a 30 Amp circuit, 10 gauge wiring, and a junction box located beneath the home, located for future installation of air conditioning.

2.7 PLUMBING FIXTURES AND ACCESSORIES

- a) Bathroom shall have a combined bathtub/shower module installed to manufacturer's standard. The unit shall be provided with a curtain rod, shower curtain and curtain hooks. The bathtub/shower module shall include faucet/shower diverter and pop-up type drain plug. The bathroom shall also have the manufacturer's standard vanity with lavatory, water closet, medicine cabinet with mirror and accessories (soap/toothbrush/paper holder, towel bars/hooks). All interior plumbing shall be assembled (connected), including the water heater pipes.
- b) Kitchen shall be equipped with manufacturer's standard stainless steel double-bowl sink with faucets, drains, and basket strainers.
- c) Hot and cold-water hose bibcocks and an open standpipe drainage receptor shall be installed in the utility area for washing machine location (preferably as shown in Figure 3.1).

2.8 APPLIANCES

- a) A 30-gallon electric water heater shall be provided for hot water supply.
- b) A 30-inch wide cooking range having four burners with a thermostatically controlled oven and a lighted, power vented range hood shall be provided. The range and oven shall be LP gas fuel with electronic ignition.
- c) A 14 cf. Frost-free refrigerator with freezer shall be provided.

2.9 FURNISHINGS

Furnishings shall be the manufacturer's standard for functional quality (provides usability, comfort and minimum maintenance). Required items include:

- a) Kitchen cabinets. Cabinets shall be the manufacturer's standard configuration, sizes, materials, and finish.
- b) Bedrooms. Each bedroom shall be furnished with 1 full size mattress and box spring (54 in. x 76 in.); a metal bed frame; 1 chest of drawers having minimum dimensions of 30 in. wide and 21 in. long and 36 in. high with 4 or 5 drawers; and 1 night stand. The chest and nightstand shall be wood construction. One (1) double strength mirror, measuring 24 in. x 30 in. shall be installed (mounted) in an appropriate area in each bedroom, preferably above the chests of drawers
- c) Living Room. The living room shall be furnished with one sofa; one armchair; one coffee table and one end table. The coffee and end tables shall be wood construction.
- d) Dining Room. The dining room area shall be furnished with a minimum 3 ft. x 5-ft. dinette table and six matching chairs.
- e) Fire Extinguisher. Each home shall be equipped with a five-pound A-B-C type fire extinguisher and a mounting bracket. The mounting bracket shall be secured to a wall stud in the kitchen area near the cooking range. The bracket shall be mounted 54 in. above the finished floor surface.

2.10 MASTER KEYS

Master keys shall be shall be furnished to the Contracting Officer's Representative when the unit is delivered. A set of 3 master keys shall be provided for every type and model of lock, and each set shall be labeled.

2.11 TRANSPORT EQUIPMENT

The units shall be in transportable and road ready condition when delivered and received. The fixed hitch, axles, idlers, wheels, tires, and all other running gear shall remain with the units.

2.12 UNITS WITH HANDICAP FEATURES

ADA Manufactured Homes shall be in general compliance with the Americans with Disability Act Accessibility Guidelines for Buildings and Facilities (ADAAG), available at <http://www.access-board.gov/>. ADA Manufactured Homes shall include the following features:

- a) 42" wide hallways
- b) 36" doors (interior and exterior)
- c) Raised electrical outlets (18" above floor)
- d) Lowered light switches (44" above floor)
- e) 54" handicap shower with grab bars and seat
- f) Handicap toilets with grab bars
- g) 60" clearance circle in bathroom and kitchen
- h) 25" knee clearance under all sinks
- i) Height adjusted kitchen cabinets
- j) Anti-scald faucets

- k) Exposed drain lines shall be wrapped
- l) Lowered fire extinguisher

An alternate floor plan will be accepted for ADA Manufactured Homes, including a 2-bedroom layout. The manufacturer shall have the capability subtracting ADA features listed above.

PART 3 EXECUTION

3.1 TRANSPORT READINESS

The manufacturer and/or supplier of manufactured homes shall ready the units for transport to the designated staging area and/or installation site. This includes but is not limited to:

- a) Exterior appurtenances. Exterior appurtenances (e.g., lighting fixtures at entrance doors, vent stacks, etc.) shall be removed and stored or appropriately secured for protection during transport of the unit.
- b) Interior appurtenances. Interior appurtenances and furnishings (furniture, appliances, etc.) shall be appropriately packaged and/or secured inside the unit to prevent shifting and damage during transport.

3.2 TRANSPORTATION

The manufactured homes shall be moved from the factory or sales outlet to the designated area by licensed professional manufactured housing transporters who are knowledgeable of each state's highway department and are equipped to obtain all necessary permits and arrange for required escort vehicles. The transporters shall verify that the manufacturer of the housing unit has prepared the unit for transportation. All costs for permits, escort vehicles, and tolls shall be included in the Contractor's bid price.

- - - End of Section - - -

ROSEAU MANUFACTURED HOME INSTALLATION SPECIFICATIONS

PART 1 GENERAL

The general scope of this section involves work required to move manufactured homes from the staging area to the residential development, and complete installation so the homes are ready for occupancy.

1.1 DEFINITIONS

“Manufacturer’s standard” means the materials and workmanship shall be the same as normally delivered to a retail sales outlet.

“Units” means manufactured homes, complete as specified.

1.2 PLACEMENT SITE DETAILS

Preliminary maps and plat details, including distance between units and overall positioning is shown on the attached drawings. The Government reserves the right to fill lots on an as-needed basis, and will direct which lots are utilized, and the order of placement.

1.3 CODES, REGULATIONS AND STANDARDS

Work performed under this contract shall be in accordance with applicable Federal, State and local codes and regulations. The Contractor is responsible to coordinate with local code authorities to determine and ensure specific installation code requirements are met. The manufacturer’s installation instructions and guidelines shall be followed for installation of manufactured homes unless overridden by a local code. The American National Standard for Manufactured Home Installations (NCSBCS/ANSI A225.1) provides additional installation details and standards. Precedent for applying codes and regulations is: (1) State rules and local codes, (2) manufacturers instructions, and NCSBCS/ANSI A 225.1. The provision of these specifications and typical details shall not be construed as lowering standards established by local laws, ordinances or regulations. The Contractor shall notify the Contracting Officer of any conflict between the various technical requirements and request appropriate direction.

1.4 MINNESOTA LICENSING AND BONDING

- a) Homes installed in MN must have seals affixed to the home (one seal each) to verify installation and anchoring to code, per Minnesota Rules Chapter 1350.0400.
- b) Manufactured home installers must be licensed by the Dept. of Commerce, Contractor Licensing Division, as per Minnesota Statutes 326.83 through 326.991. Questions concerning installer license and bond requirements, contact Charlie Durenberger at Dept. of Commerce 651-297-7044.

- c) Manufactured home installers must be registered with the MN Building Codes and Standards Division as per MN Building Code 1350.0500. Installers must submit copy of license to Building Codes Division to be registered and obtain the required installation and anchoring seals/certificates. For further information concerning installer registration and seal/certificate ordering, contact:

MN Building Codes and Standards Division
Cindy Jackson, 651-296-4628, or
Raymond Karnuth, 651-296-4634

- d) Electrical contractors must be licensed by the state of Minnesota. For further information concerning electrical work, contact:

Minnesota State Board of Electricity
651-642-0800
Website: www.electricity.state.mn.us

- e) For further information concerning plumbing, contact :

MN Dept. of Health, Plumbing Codes Division,
Gary Topp, 651-215-0841
Website: www.health.state.mn.us/divs/eh/plumbing.

- f) Towing operators shall be properly licensed and insured.

1.5 SCHEDULE AND DELIVERY

The Government, at its option, may issue Orders for Manufactured Home Installation (installation services). Each Order will specify the number of installations required under that Order. The Contractor shall not commence the installation services under any given Order until the Contracting Officer's Representative (COR) provides the Contractor written notice to commence the installation work. The Contractor shall initiate the installation services, at the installation site, within 3 calendar days of the date of the COR's notice. Once the installation work commences on site, the Contractor shall complete at least 3 installations (including steps/ramps) per calendar day until all the installations required by that Order are accomplished.

1.6 SUBMITTALS

Heat Cable. Provide manufacturer's instructions. Indicate or highlight the selected installation requirements for spiral wrap spacing for water lines and sanitary pipes, based on pipe size and insulation.

Home Access Steps with Shelter, and Home Access Ramps. Shop Drawings for the steps with shelter and ramps shall be submitted within 2 weeks after award.

1.7 ACCEPTANCE

Approval will be on an individual manufactured home basis. Exceptions or substitutions must be approved by the Government prior to performing the work. Units will not be accepted until an authorized Government Representative inspects and signs for the unit. The Contractor shall be available for move-in inspections.

1.8 SITE CONDITIONS

Aggregate surfaced trailer pads will be constructed as part of the site development (by others).

1.9 MEASUREMENT AND PAYMENT

1.9.1 COMPENSATION

The payment provided for in the contract shall constitute full compensation for furnishing all materials and for performing all work under the contract in a complete and acceptable manner. The contract work shall include providing plant, equipment, tools, supplies, labor, supervision, incidental materials, quality control, environmental protection, and meeting safety requirements, and for performing all work required for which separate payment is not otherwise provided. Compensation for all work shown, specified, or essential to completion of the project (whether or not the specific material or operation is indicated) shall be included on the bidding schedule. The payment provided for in the contract includes compensation for all risk, loss, damage, and expense arising out of the nature of the work or its prosecution, subject to conditions of the contract. Payment for each contract line item will constitute full compensation for furnishing the materials and constructing the work complete in place as specified.

1.9.2 CONTRACT LINE ITEMS

- a) Manufactured Home Installation. Manufactured home installation will be measured by each unit completely installed and accepted. Work shall include all tasks specified, except for Home Access Ramps paid for separately.
- b) Home Access Ramps. Home Access Ramps will be measured by each ramp completely installed and accepted. Work shall include all materials and crew to provide the ramps, complete and in-place.
- c) Home Access Steps and Shelter. Home Access Steps and Shelter will be measured by set completely installed and accepted. Work shall include all materials and crew to provide the steps and shelter, complete and in-place.

PART 2 PRODUCTS

2.1 POTABLE WATER SERVICE LINES

Water lines shall be three-quarter inches (3/4") type K or L copper tubing, ASTM B88-74A.

2.2 WATER METERS

Water meters will match the standard products used by the City of Roseau (point of contact: David Drown, Assistant Superintendent, 218/463-2351). The meters shall be a magnetic drive, sealed register, positive displacement type oscillating piston. The case shall be bronze, with a separate removable measuring chamber. The register shall be a straight reading type display in a hermetically sealed, tamperproof enclosure, equipped for reading with the Invensys electronic communications encoder. The registers shall be identical and completely interchangeable. The measuring chamber shall allow for repair to AWWA standards. The piston motion shall be transmitted to the register through magnetic coupling. Accuracy and head-loss shall conform to AWWA C-700. Working pressure shall be rated at 150 psi.

Water meters shall consist of the following products, or equal (substitutions shall be submitted for approval):

Invensys Metering Systems, 1-800-638-3748
Meter: SR11, displacement type
Register: Touchread system with 4-wheel high resolution

A. Y. McDonald MFG Co., 1-800-292-2797
Copper meter Insetter: Series 40, "C" style

2.3 SANITARY SEWER SERVICE LINES

Pipe shall be rigid PVC or ABS sewer pipe. Pipe shall be nominal 3" inside diameter, schedule 40. Acrylonitrile-butadiene-styrene (ABS) and polyvinyl chloride (PVC) composite sewer pipe and fittings shall conform to ASTM D 2680. ABS pipe shall conform to ASTM D 2751, and PVC shall conform to ASTM D 3034. Fittings and cement shall be compatible with the pipe supplied and shall have a strength not less than that of the pipe.

2.4 WOOD PRODUCTS

All wood (except shims) used on site (blocking, steps, ramps, etc.) shall be moisture resistant treated lumber.

2.5 SKIRTING

The Contractor shall furnish and install insulated skirting on entire perimeter of manufactured home in accordance with manufacturer's recommendations and normal standards of industry. Skirting shall be ventilated in accordance with state rules. An

access panel or equivalent shall be provided adjacent to the manufactured home water inlet location.

2.6 PIPE HEATING CABLE/TAPE

The heat cable shall be UL listed, Factory Mutual Systems certified, intended for wrapping exterior pipes to prevent pipe freeze-up, self regulating heat output, grounding outlet plug, and be suitable for use on plastic and metal water pipes. The heat cable used on the sanitary line shall be of a type that will not damage PVC or other non-metallic water pipe. Base cable output and wrap spacing on design temperature of -40F and insulation thickness.

PART 3 EXECUTION

3.1 TRANSPORTION

The Contractor shall move the manufactured homes from the staging area (Roseau fairgrounds) to residential lots located within 5 miles of the staging area. The mobile home shall be properly placed, positioned and aligned on the site. The contractor is liable for any damage to the travel trailer while placing it at the designated site.

3.2 BLOCKING AND LEVELING

- a) The nominal height of the manufactured homes shall be blocked at a nominal height of 26-27" from the ground to the bottom of the rim joist. The number and location of piers shall be in accordance with the manufacturer's instructions, and not less than 14 piers per home. Minimum requirements include:
 - 1) Piers shall be blocked and leveled to the following specifications:
Nominal 16" x 8" x 8" dry cast concrete blocks shall be used. Piers shall be 16" x 16" (double blocked, alternating stack). Concrete blocks shall be placed with the face and webs vertical. Cap and base blocks shall be 16" x 8" x 4" solid concrete per the Minnesota State Building Code.
 - 2) The Contractor shall use (2) 24" x 12" x 4" solid concrete blocks, reinforced with steel reinforcing bar, as a footing for each pier.
 - 3) The space between the top of the concrete block piers and the bottom of the travel trailer frame shall not exceed 4 inches. No more than 3 inches of this space may be filled with blocking timber laid perpendicular to the travel trailer steel I-beam frame. No more than one 1 inch of this space shall be shimmed with wedges.
 - 4) After the weight of travel trailer is transferred to the concrete piers, the piers shall be vertical and tightly shimmed with the wooden wedges. If

the piers are not vertical at the time of final inspection, they shall be taken down and reinstalled by the Contractor at no additional cost. All wood used in blocking must be treated.

3.3 ANCHORING AND STRAPPING (TIE-DOWNS)

Manufactured homes are required to be installed and anchored in accordance with the manufacturers DAPIA approved installation manuals, as per Minnesota Rule 1350.2600. Anchors shall meet minimum layout and capacity requirements in the Minnesota Rules 1350, unless an alternate plan is submitted and approved by the Contracting Officer. The manufacturer's installation instructions shall be followed in determining the location and number of unit tie-down connecting points and method of securing the anchors. Anchors shall either be field load tested in accordance with Minnesota Rule 1350.2900, or shall be designed for clay soils with an unconfined compressive strength of 1500 psf. Evidence of anchor capacity verification shall be furnished upon request.

3.4 SEWER LINE INSTALLATION TO MANUFACTURED HOME

- a) Sewer piping shall be installed in accordance with local codes and the Uniform Plumbing Code.
- b) A 6" sewer riser, with a cleanout for below grade pipe, will be located at the trailer pad as part of the site development (by others). The Contractor shall provide the connection between the manufactured home and the riser. The nominal inside diameter of the unit sewer connection shall not be less than 4 inches. The pipefitting that attaches the sewer connection to the drain outlet of the manufactured home shall be threaded and screwed or installed with a removable adapter for the drain outlet. There are two options for the connection:
 - 1) Vertical Connection. The manufactured home may be located on the pad with the drain directly over the riser. The lower end of the manufactured home sewer line shall extend into the riser with an air tight connection provided by the use of a rubber ring extending at least 3 inches below the threaded portion of the riser. Pipe shall be insulated.
 - 2) Offset Connection. The connection shall include a horizontal (sloped to drain) section of pipe that can accommodate up to 3 inches vertical movement. The connection shall include a clean-out fitting to access all new pipe. The pipe shall be wrapped with heat tape and insulation. The slope shall be continuous and at least 1/4 inch per foot and no more than 1/2 inch per foot. Overhead (hanging) sewer straps shall be placed at 4-foot intervals (maximum). The above ground line shall be properly sealed where it connects to sewer riser.

- c) The Contractor shall test the sewer line for leakage, and any leaks shall be repaired at no additional cost. Sewer piping shall be installed in accordance with local codes and the Uniform Plumbing Code.

3.5 WATER LINE INSTALLATION TO MANUFACTURED HOME

- a) A $\frac{3}{4}$ inch water service riser, with shut-off valve, will be located at the trailer pad as part of the site development (by others). The Contractor shall provide the connection between the manufactured home and the riser. All service line beneath the manufactured home shall be installed clear of the ground, made with the minimum number of joints, be of the shortest practical length, and shall be wrapped with heat cable/tape and insulation. Provide extra wrap of heat cable/tape at service connection to prevent freezing at ground line.
- b) The heat cable shall be installed in compliance with the cable manufacturer's instructions. Preformed insulation and weatherproof covering shall be placed on the pipe and fastened with a continuous strap of weather resistant tape.
- c) The Contractor shall test the service line for leakage, and any leaks shall be repaired at no additional cost.
- d) A water meter shall be installed on each home.

3.6 ELECTRICAL SERVICE

A licensed electrical contractor shall complete all electrical wiring. The licensed electrical contractor performing the work shall obtain all permits and inspections. The Contractor shall pay all application and inspection fees required by the state of Minnesota for electrical installation, including re-inspection fees. The current state electrical inspection fee is \$30.00.

- a) At the time of installation an existing 2" PVC conduit and approximately 20 feet of coiled electrical service conductors will be stubbed up at each of the mobile home sites. The Contractor shall furnish and install addition conduit, run the existing service conductors into mobile and connect the conductors to the terminals of the mobile home's main panel-board.
- b) The Contractor shall provide and install any additional 2" PVC schedule 40 conduit up to 10 feet, with all required fitting and adapters required for connection of the electrical service. Between the end of the PVC conduit and the connection to the mobile home raceway or junction box, the Contractor shall provide and install a 3 to 5 foot length of Flexible Nonmetallic Conduit (LFNC) with a loop to allow for mobile home movement.
- c) The electrical installation shall meet all the requirement of the 2002 National Electrical Code and all federal, state, and local codes and requirements. The

electrical installation contractors shall be licensed in the state of Minnesota. The Contractor shall pay all application and inspection fees required by the state of Minnesota for electrical installation. All material installed shall be UL listed or approved.

- d) After all inspections and approvals the Contractor shall energize the service to the mobile home and complete an operational test of the electrical system. If there are any deficiencies the Contractor shall correct them and retest the system.

3.7 LIQUID PETROLEUM (LP) GAS SYSTEM

- a) The Contractor shall install a complete LP gas system. The price shall include one-year rental of a minimum 500-gallon tank and 250 gallons of gas at time of installation. The tank must be located no further than fifty feet (50') from the closest point to which the LP refueling truck can drive, and no closer than 10 feet from a manufactured home. The tank shall be placed on concrete cap blocks embedded in the ground. The installation shall be made so that convenient recovery of the tank is possible.
- b) The installation shall be in accordance with State codes and commercial practice. The entire system must be checked for leaks and repaired if any are found. The furnace orifice shall be converted to LP gas if necessary, unit cycled, and adjustments made.

3.8 OCCUPANCY READINESS FOR MANUFACTURED HOMES

The Contractor shall complete the following list of tasks for each unit. A checklist shall be completed for quality control to verify all tasks have been checked and are satisfactory.

- a) Assemble Accessories and Arrange for Use:
 - (1) Arrange all furniture for occupancy;
 - (2) Clean and mount storm window panels;
 - (3) Install drawers;
 - (4) Remove window clips, travel blocking and protective taping;
 - (5) Hang fire extinguisher (report low charge to Government inspector);
 - (6) Mount exterior light fixtures, install bulbs;
 - (7) Install interior light globes and covers;
 - (8) Install unmounted screens;
 - (9) Re-install any fallen curtains;
 - (10) Install cabinet door panels and other knock-down panels;
 - (11) Install commode tank lid; and
 - (12) Repair, if necessary, cabinet/door/drawer hardware.
- b) Activate Utility Systems and Make Minor Repairs:

(All parts changed must be of same quality.)

- (1) Test water system and make minor repairs (i.e., tighten, adjust, or replace fittings, flare nuts, faucet washers, ball cocks, shower diverters, faucet sets, etc.);
- (2) Verify hot/cold water lines, reverse if required;
- (3) Tighten or replace loose drain line connections (traps, strainer assemblies, etc.);
- (4) Replace commode wax ring and tank gaskets, as needed;
- (5) Tighten loose connections in electrical system; and
- (6) Test electrical circuits and replace bulbs, breakers, switches, or receptacles, as needed.

c) Test Appliances and Appurtenances:

- (1) Activate, test and make any necessary minor repairs to the refrigerator, range, furnace, air conditioner, and water heater for proper operations. Adjust pilots and burners, change orifices, water heater elements, etc., as needed;
- (2) Test smoke detector and replace if faulty; and
- (3) Test exhaust fans for proper operation, repair as needed.

d) Final Clean Up and Readiness:

- (1) Clean floors, counters, kitchen equipment, bath fixtures, and windows as needed;
- (2) Perform any other minor work required to prepare the unit for occupancy (i.e., door adjustments, refasten molding and panels, etc.);
- (3) Remove unit packing debris and excess set-up material from premises;
- (4) Report major discrepancies or missing items to Government inspector.

3.9 HOME ACCESS STEPS AND SHELTER

- a) All homes will be outfitted with steps, except those directed to have ramps. The contracting Officer will indicate use of steps or ramps on the orders issued. Examples of stairs, shelters and ramps at previous FEMA temporary housing developments are shown on photographs included in the attachments.
- b) The contractor shall provide and install wooden steps for each unit. Wooden steps shall be made of exterior grade framing lumber. The Contractor shall install steps in accordance with state and local codes, and the following minimum requirements: Steps at the front entrance shall be constructed 36 inches wide, with a 36" x 60" landing at the door level. Steps at the rear entrance shall be constructed 36" wide, with no landing. Handrails constructed with 2" x 4" safety edge lumber shall be provided on all steps. Steps shall have a stable and secure

foundation, be level in both directions, and anchored. Handrails shall be sanded and painted with one coat of white paint.

- c) Steps shall be enclosed with a roof, sides, and self-closing screen door. The screen door shall be the same dimensions as the standard manufactured home front entrance door. The enclosure shall be a prefabricated fiberglass shelter, wood framed with wood products sheathing, or wood framed with metal siding and roof, or other design approved by the Contracting Officer. The shelter shall be securely anchored to resist wind loads. This shelter will not be required for homes equipped with home access ramps.
- d) Alternates for prefabricated steps shall be submitted for approval. Prefabricated steps will only be allowed if the product meets all codes and regulations, the height and clearances are acceptable, and the same product can be used for all homes installed.

3.10 HOME ACCESS RAMPS

- a) Homes shall only be outfitted with ramps at the front entrance where directed. Homes with ramps shall be provided with steps at the rear entrance, constructed as specified in paragraph Home Access Steps and Shelter. The Contracting Officer will indicate use of steps or ramps on the orders issued.
- b) The Contractor shall prepare the grade and construct a wooden ramp with level platform such that the platform is centered on the door of principal entry into the travel trailer and flush with the doorsill. The ramp shall be in compliance with the Americans with Disabilities Act, State and local requirements, and the following:
 - 1) All wood shall be treated, exterior grade framing lumber and shall be used throughout, except for the platform and runway surface, which shall be exterior plywood. The handrail shall be 2" x 4" safety-edge lumber, sanded and painted with one coat of white paint. Nails shall be coated and sized consistent with industry standards.
 - 2) The overall length of the ramp and platform shall be fixed by the height above the grade of the travel trailer sill and the distance to either a point abreast of the unit, or to a suitable, firm surface, approach to the ramp. The ramp pitch shall be one-inch (1") slope for each twelve inches (12") in length (maximum).
 - 3) The ramp shall be firmly supported on grade, with mud seals added where necessary because of soil conditions. The ramp and the platform shall have a non-skid surface using materials, which are industry approved (sand added to paint is unacceptable).

3.11 SKIRTING

The skirting shall be securely fastened to the manufactured home and ground using accepted fastening methods. The top rail shall conceal top fasteners.

3.12 CLEANUP

All construction debris, waste and excess material shall be cleaned, removed from the site, and properly disposed of in accordance with applicable laws and regulations.

- - - End of Section - - -

SECTION J

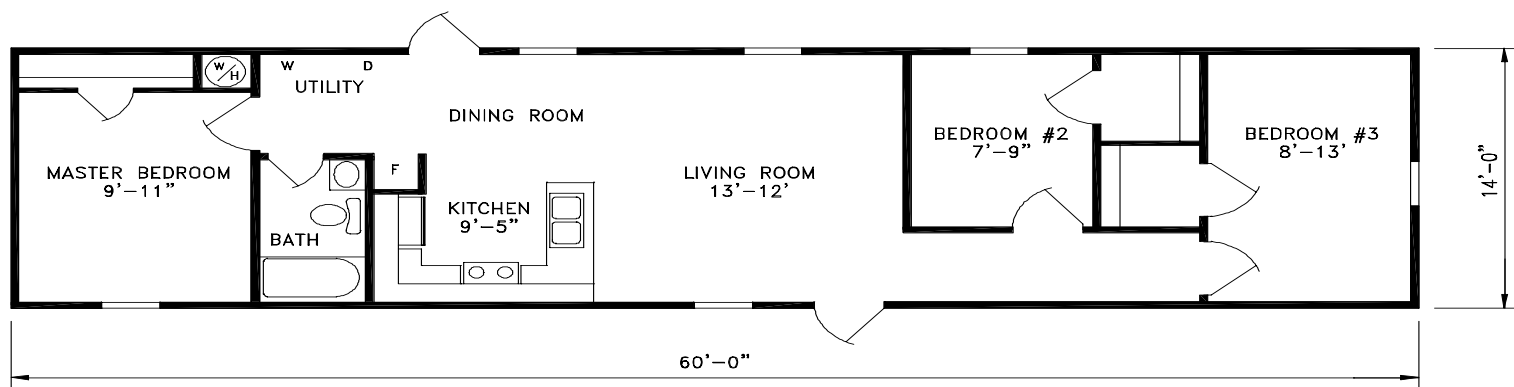
ATTACHMENTS

Table of Contents:

Figure 3.1 – Typical Floor Plan, Manufactured Home

Preliminary Plans for the Site Development (4 drawings)

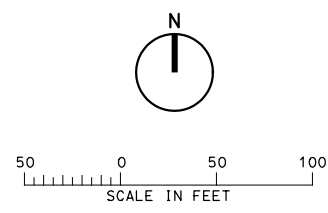
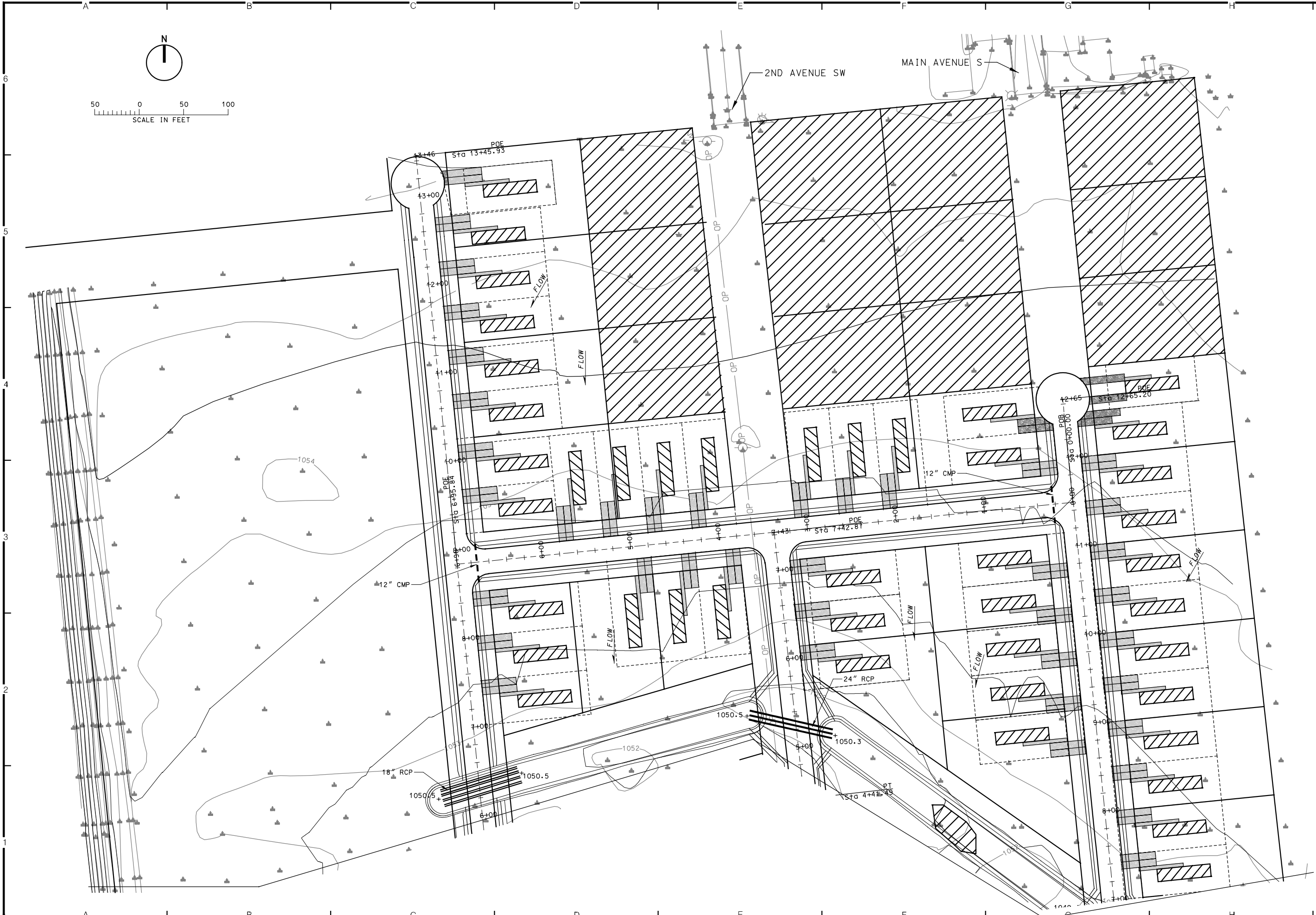
Photographs of stairs, shelters and ramps (5 photographs)




833 SQ. FT.
3 Bedroom, 1 Bath

TYPICAL FLOOR PLAN
MANUFACTURED HOME

FIGURE 3.1





US Army Corps of Engineers
St. Paul District

Symbol	Description	Date	Appr.

DESIGNED:	CHECKED:	SCALE:	AS SHOWN:	DATE:	MONTH:	YEAR:
XXX/XXX	XXX/XXX	AS SHOWN	AS SHOWN			
Q: 000	Q: 000	CADD FILE NAME:	CADD FILE NAME:			
000	000	RURC10002.DGN	RURC10002.DGN			
000	000	SOL NO:	SOL NO:			
000	000	GCW:	GCW:			
DESIGNED:	CHECKED:	DATE: <td>DATE:</td> <td colspan="3"> </td>	DATE:			
XXX/XXX	XXX/XXX					
000	000	AE APPROVING OFFICIAL:	AE APPROVING OFFICIAL:			
000	000					

DEPARTMENT OF THE ARMY
ST. PAUL, MINNESOTA
CORPS OF ENGINEERS
ST. PAUL DISTRICT

RESERVED FOR AE LOGO
RESERVED FOR AE ADDRESS
ANYTOWN, USA

ROSEAU TEMPORARY HOUSING SITE 1

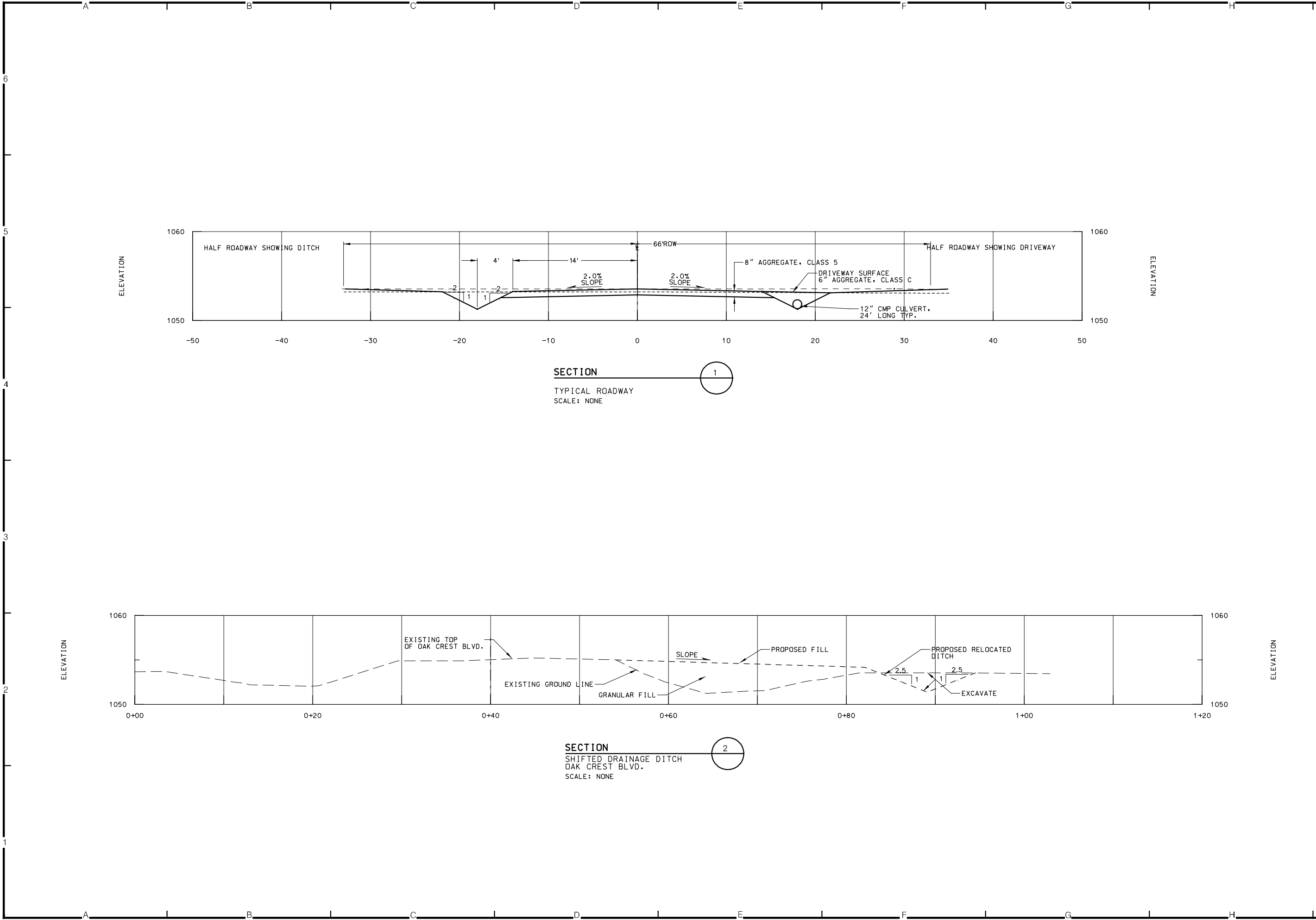
SITE PLAN

SITE LAYOUT

DRAWING NUMBER:

**BASIN-T-
CC/FNO.01**

SHT 6 OF 19



Symbol	Description	Date	Appr.

DESIGNED: XXX/XXX/00 G.D.B.	SCALE:	DATE:
	AS SHOWN	MONTH YEAR
	CADD FILE NAME:	
	RURC300001.DGN	
CHECKED: XXX/XXX/00 G.D.B.	SOL NO:	
DRAWN: GCW	DACW37-01-B-0000	
DESIGNED: XXX/XXX/00 G.D.B.	AE APPROVING OFFICIAL:	
CHECKED: XXX/XXX/00 G.D.B.		

DEPARTMENT OF THE ARMY ST. PAUL, MINNESOTA CORPS OF ENGINEERS ST. PAUL DISTRICT	RESERVED FOR AE LOGO RESERVED FOR AE ADDRESS ANYTOWN, USA
--	---

ROSEAU TEMPORARY HOUSING SITE 1
SITE LAYOUT
CROSS SECTIONS









